

# Technical Datasheet



## R&M Cat 6 Unshielded Connection Module



## Cat 6 Connection Module

The Cat 6 connection module, from the R&Mfreenet cabling system, is ideal for voice and fast data transmissions. It can be used for transmission frequencies of up to 250 MHz. This high-performance Cat 6 module can also be used in 10 Gigabit Ethernet (10GBASE-T) applications to 500 MHz, with a limited length of at least 55m.

### Cat 6 Features

- Exceeds the Cat 6 specification (mated) for the entire de-embedded plug range as specified by the standards (ISO/IEC 11801, EN 50173 and TIA/EIA 568C)
- Attains Cat 6 values together with Cat 6 patch cables as specified in standard IEC 11801 Ed. 2.2
- Achieves best transmission characteristics with R&Mfreenet Cat 6 patch cables (R302309 – R302319)
- NEXT values at 100 MHz are 11dB better than Cat 5e
- NEXT performance is tripled and bandwidth performance is doubled compared to Cat 5e in the channel
- Gold-plated contact area and tin-plated insulation displacement contact area
- Maximum reliability through special contact design that does not use internal transfer points such as printed circuit board
- Capacitive and inductive compensation
- Compatible with Cat 6 standard plugs
- Full mechanical and electrical backward compatibility with Cat 5e and 5
- RJ-11 compatible
- Fits into all R&Mfreenet patch panels and outlets, as well as in selected vendors' faceplates by using specific adapters
- Tool-free connection of installation cables of AWG 22-26 plus stranded cables of AWG 22/7 – 26/7
- Allows connection of cables with larger or smaller AWG with the use of the Screw Clip (R35293)
- Wiring option according to TIA/EIA 568 A and B with parallel termination of the pairs without splitting of pair 3,6
- Label with color wiring chart and integrated production date for quality tracing
- Halogen-free materials
- Supports PoE (IEEE 802.3af), PoEP (IEEE 802.3at), 4Ppoe (IEEE 802.3bt) and is compatible to IEC 60512-99-001/002
- Delta, GHMT, 3P certified

### Standards

IEC 60603-7: Electrical Characteristics of the Telecommunication Outlets

ISO/IEC 11801, Ed. 2.2: June 2011

EN50173-1: May 2011

**Mechanical Data**

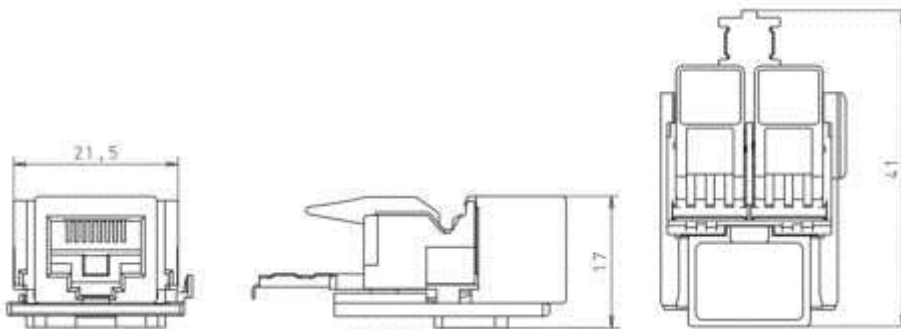
Number of RJ45 jacks	1
Operating temperature range	-10°C to 60°C
Storage temperature range	-40°C to 70°C
Humidity	95% (non-condensing)
Contact material	CuSn
Contact surface	>0.76 µm gold over >1.2 µm nickel
Housing material	Polycarbonate (UL-94-V0)
Number of IDC* connections	8 / jack
IDC contact material	CuSn, tin-plated
Admissible wire Ø	0.4 mm (AWG26) – 0.65 mm (AWG22)
Admissible strand Ø	AWG26/7 – AWG22/7
Admissible insulation Ø	0.8 mm – 1.6 mm
Wire strain relief	Through labyrinth in IDC block
Cable strain relief	Through cable tie

\*IDC: Insulation Displacement Contact

Description	Standard value	Relevant Standard	Typical value (at 20°C)
Mating cycles min.	> 750	ISO/IEC 11801 2 <sup>nd</sup> Ed.	> 1000
Insertion cycles installation cables*	> 20	ISO/IEC 11801 2 <sup>nd</sup> Ed.	> 20

\*Re-terminations may be performed with wire of either larger or equal size than originally terminated.

Dimensions unshielded

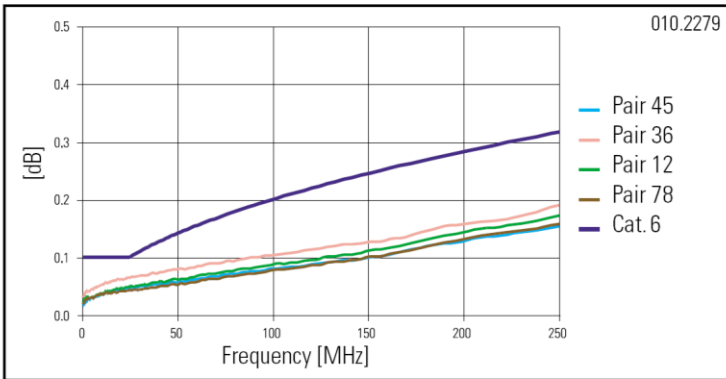


## Electrical Data

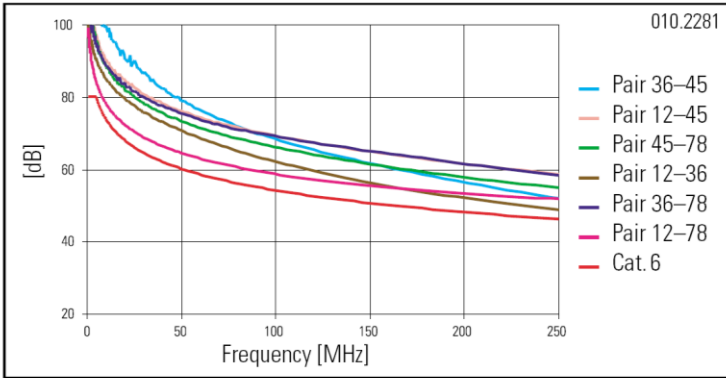
Description	Standard value	Relevant standard	Typical value (at 20°C)
Electric strength	1000 V DC or AC peak	IEC 60603-7	> 1000 V <sub>eff</sub>
Insulation resistance	> 500 MΩ (500 V DC)	IEC 60603-7	> 500 MΩ (500 V DC)
Contact resistance	< 200 mΩ	IEC 60603-7	< 50 mΩ

Frequency (MHz)	Attenuation (20°C) [dB]		NEXT (20°C) [dB]		Return Loss (20°C) [dB]	
	unshielded		unshielded		unshielded	
1.0	0.03		98.9		32.1	
4.0	0.04		86.0		29.6	
10.0	0.05		78.4		30.6	
16.0	0.06		74.2		37.4	
20.0	0.06		72.3		33.6	
31.25	0.07		68.4		37.7	
62.5	0.09		62.5		34.0	
100.0	0.10		58.5		35.6	
125.0	0.11		56.7		32.0	
155.0	0.13		55.0		29.2	
175.0	0.14		53.8		29.7	
200.0	0.16		51.9		27.0	
250.0	0.19		48.7		25.0	

### Attenuation, Category 6 unshielded



### NEXT, Category 6 unshielded



### Return Loss, Category 6 unshielded

